

TECHNICAL INFORMATION

INFORMACION TECNICA

CITIZEN QUARTZ

Cal. No. E76※



(Cal. No. E760)

ENGLISH

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§1. FEATURES

This watch is a solar-powered watch that contains a solar cell in its face that drives the watch by converting light energy into electrical energy. It is equipped with numerous functions including a perpetual calendar that changes the date automatically (day, month and year change automatically through February 28, 2100 even in leap years), a time difference correction function that makes it possible to easily change the time difference without stopping the watch, and a power save function that reduces current consumption when the solar cell is not exposed to light.

§2. BEFORE USING

This watch is a solar-powered watch. Make sure to charge the watch prior to use by adequately exposing it to light.

A secondary battery is used in this watch to store electrical energy. This secondary battery is a clean energy battery that does not contain mercury or other toxic substances. Once fully charged, the watch circuit will continue to keep time for about 5 years without additional charging (when the power save 2 function is operating).

<Proper Use of this Watch>

To use this watch comfortably, make sure to recharge it before it stops running completely. Since there is no risk of overcharging (Overcharging Prevention Function) no matter how much the watch is charged, **it is recommended that the watch be recharged everyday.**

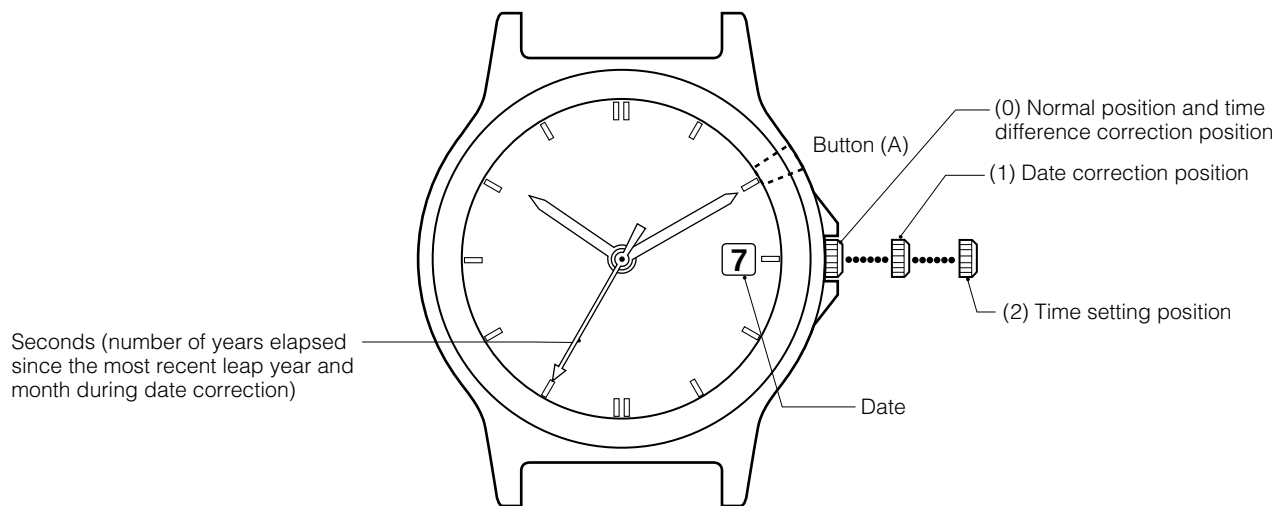
§3. SPECIFICATIONS

Caliber NO.		E76★
Type		Analog solar-power watch
Movement size (mm)		ø29.7 x 4.2t
Accuracy		Within ±15 seconds per month on average (When worn at normal temperatures of 5°C to 35°C/41°F to 95°F)
IC		1 unit of C/MOS-LSI
Operating temperature range		–10°C to +60°C/14°F to 140°F
Converter		Bipolar step motor, 3 units
Time adjustment		No adjustment terminal for use in market
Measurement gate		10 sec.
Display function	Time	Hours, minutes,seconds(the hour and minute hands move every 15 seconds and the second hand moves every second)
	Calendar	Date display (with rapid correctional function) Month and years elapsed since leap year displayed by second hand (only displayed when correcting the date)
Additional functions		Power save 1 function
		Power save 2 function
		Time difference correction function (forward and backward correction in 1 hour units)
		Insufficient recharging warning feature
		Time setting warning feature
		Overcharging prevention feature
Secondary battery	Part No.	295-56
	Continuous operating time	Fully charged to stopping: Approx. 5 years (while in operation of power save 2 feature) 2-second interval movement to stopping: Approx. 2 days

* Specifications are subject to change without notice.

§4. SETTING THE TIME AND DATE

If the watch is provided with a cover open, the cover to set the time or date, and then close the cover once the time or date has been set.



Setting the Time

1. When the crown is pulled out to the second click (time setting position), the second hand rapidly advances to the 0 seconds position and stops.

Note: Align the hands at the reference position after performing the all-reset procedure when the second hand does not stop at the 0 seconds position.

2. Turn the crown and set the time.

① When the crown is turned to the right, the hour and minute hands move forward (clockwise).

② When the crown is turned to the left, the hour and minute hands move backward (counter-clockwise).

* Turning the crown continuously causes the hands to advance rapidly. Turn the crown to either the left or right to stop the hands from advancing rapidly.

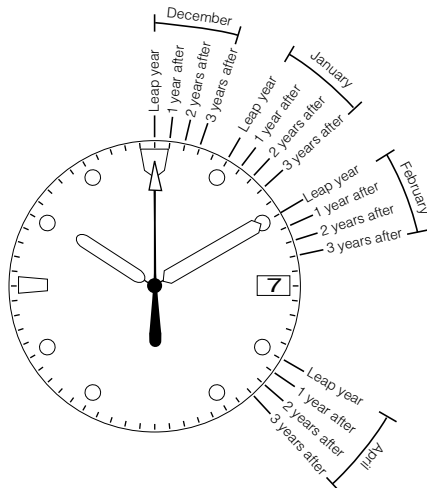
Note 1: When correcting in the forward direction, the date changes when the hour and minute hands indicate 12:00 AM. However, when the date is changed in the case the hands are advancing rapidly, the hour and minute hands pause at 12:00 AM and then resume advancing rapidly after the date has changed.

Note 2: When correcting in the backward direction, the date does not change even if the hour and minute hands pass 12:00 AM.

3. Return the crown to the normal position in synchronization with a telephone time signal or other time service.

Setting the Date

- This watch is provided with a perpetual calendar function. Once it is set, the year, month and date change automatically, including leap years.



<How to Read Month and Year>

■ How to read the month:

January: Between 1:00 and 2:00

February: Between 2:00 and 3:00

⋮

⋮

⋮

December: Between 12:00 and 1:00

■ How to read the year:

Leap year: First mark in each month zone

1 year after most recent leap year:

Second mark in each month zone

2 years after the most recent leap year:

Third mark in each month zone

3 years after the most recent leap year:

Fourth mark in each month zone

<Quick Reference Table for No. of Years Since Most Recent Leap Year>

Year	Years elapsed	Year	Years elapsed
2000	Leap year	2004	Leap year
2001	1st year after leap year	2005	1st year after leap year
2002	2nd year after leap year	2006	2nd year after leap year
2003	3rd year after leap year	2007	3rd year after leap year

- When the crown is pulled out to the first click (calendar correction position), the second hand moves to the year and month position stored in memory and stops.
- Turn the crown and set the date.
 - Turn the crown to the right to set the second hand to the position corresponding to the year (number of years elapsed since the most recent leap year) and month. Turning the crown continuously causes the second hand to advance rapidly.

Examples:

- * In the case of December in a leap year: Align the second hand at 0 seconds.
- * In the case of April, in a year that is three years after the most recent leap year: Align the second hand at 23 seconds (between 4:00 and 5:00).

- The date is advanced by one day if the crown is turned to the left.

- Turning the crown continuously causes the date to be advanced continuously. Turn the crown to either the left or right to stop the date from advancing continuously.

- Always make sure to return the crown to the normal position after setting the date.

The second hand advances to the current seconds and the hands begin to move.

<When Setting the Date by Continuously Turning the Crown>

The date can be set easily by stopping advancing the date rapidly two to three days before the correct date and then advancing the date one day at a time.

<When the Date has been Set to a Date that does not Exist>

The date automatically changes to the first day of the following month when the crown is returned to the normal position from the date correction state.

Examples:

- Normal Years:
March 1 when the date has been set to February 29, 30 or 31.
October 1 when the date has been set to September 31
- Leap Years:
March 1 when the date has been set to February 30 or 31.
October 1 when the date has been set to September 31

Correcting the Time Difference

- When button (A) is pressed and the crown is turned continuously, time difference can be corrected in 1 hour units. Time difference cannot be corrected continuously.
The time difference can be corrected for 30 seconds after button (A) has been pressed or for 30 seconds after time difference correction (after the hands finish moving).
1. Put the crown in the normal position.
 2. When button (A) is pressed, the second hand makes one revolution to indicate that the watch is in the time difference correction state.
 3. Correct the time difference by turning the crown to the right or left.
- When the crown is turned continuously to the right, the minute and hour hands are corrected forward (clockwise) by one hour.
 - When the crown is turned continuously to the left, the minute and hour hands are corrected backward (counter-clockwise) by one hour.

Note 1: If the time difference is corrected in the forward direction, the date after the hands are finished moving is corrected by +1 day when the hour and minute hands pass 12:00 AM. Pay attention to AM and PM when correcting the time difference.

Note 2: When returning the time difference to its original setting, return the hour and minute hands in the opposite direction in which they were corrected. If the time difference is corrected in the backward direction, the date after the hands are finished moving is corrected by -1 day when the hour and minute hands pass 12:00 AM. This takes about two minutes, however, since the date is corrected in the forward direction.

Example:

Setting the time difference of London (local time) when the time in Tokyo (home time) is 10:00 AM:

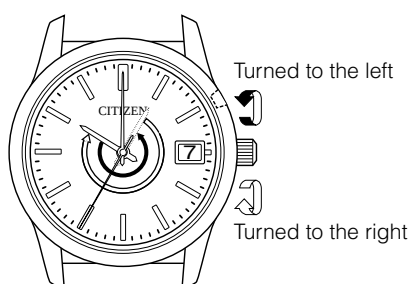
The time difference between Tokyo and London is -9 hours. Since it is 1:00 AM in London when it is 10:00 AM in Tokyo, in the case of correcting the time difference at this time:

1. Press button (A).
2. Turn the crown to the left to turn the hands backward (counter-clockwise) by 9 hours .

Note: If the crown is turned to the right to move the hands clockwise to set the time to 1:00, the time will be 1:00 PM and the calendar function will not operate correctly, preventing the date from changing at the proper time.

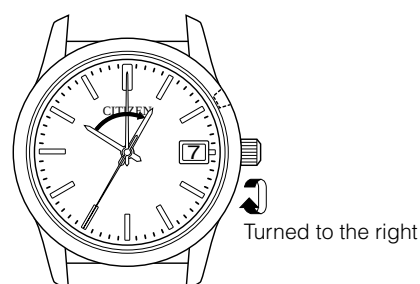
Case of Correcting Time Difference by 9 Hours

<Proper Correction Procedure>



➡: Direction of time difference correction
⇐: Direction of returning time difference

<Improper Correction Procedure>



➡: Direction of improper time difference correction

☆ **The time difference cannot be corrected when the second hand is moving at two-second intervals indicating that the watch is insufficiently charged. Correct the time difference after charging the watch by exposing it to light so that the second hand returns to one-second interval movement.**

[Reference: Time Differences of Major World Cities Based on UTC]

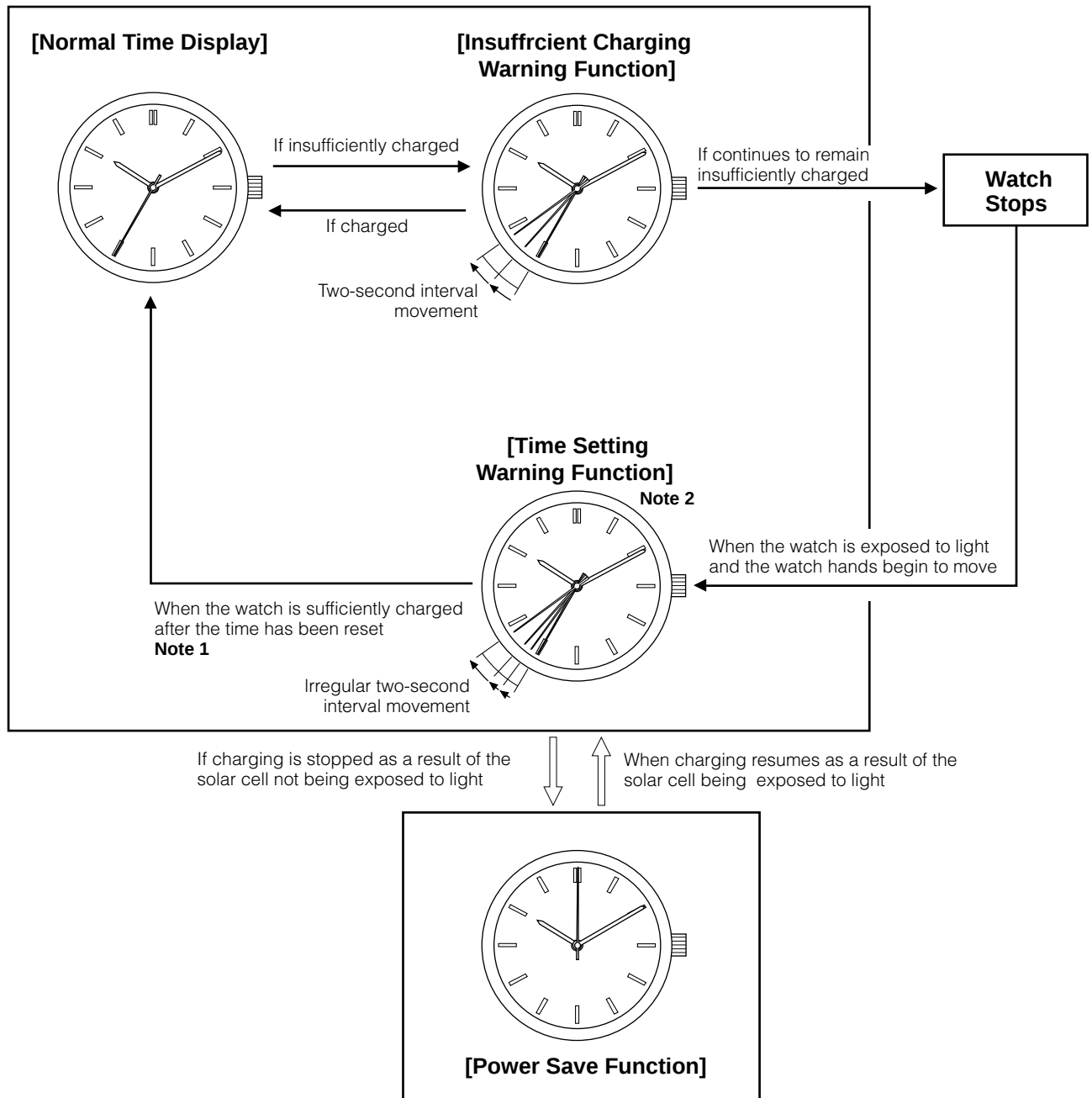
City name	Time difference	Daylight savings time	City name	Time difference	Daylight savings time
London	±0	O	Nouméa	+11	X
Paris	+1	O	Auckland	+12	O
Cairo	+2	O	Honolulu	-10	X
Moscow	+3	O	Anchorage	-9	O
Dubai	+4	X	Los Angeles	-8	O
Karachi	+5	X	Denver	-7	O
Dacca	+6	X	Chicago	-6	O
Bangkok	+7	X	New York	-5	O
Hong Kong	+8	X	Caracas	-4	X
Tokyo	+9	X	Rio de Janeiro	-3	O
Sydney	+10	O			

* Cities (regions) in which daylight savings time is used are indicated with a O, while those in which it is not are indicated with an X.

* The time difference and use of daylight savings time of each city are subject to change by the particular country.

§5. FUNCTIONS UNIQUE TO SOLAR-POWERED WATCHES

When the watch becomes insufficiently charged, the following warning functions are activated to inform the wearer that the watch is insufficiently charged.



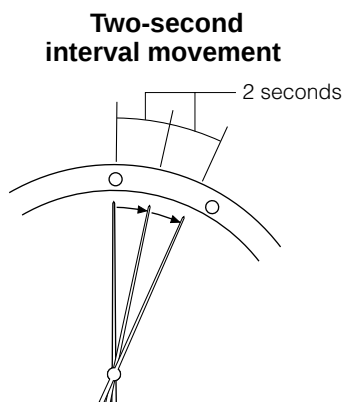
Note 1

Irregular two-second interval movement will continue if the time is not reset.

Note 2

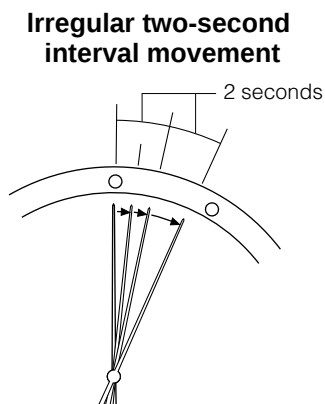
Check the date since it also may not be correct.

<Insufficient Charging Warning Function>



The second hand moves at two-second intervals to indicate that the watch is insufficiently charged. The watch stops after about 2 days have elapsed. Expose the watch to light to return the second hand to one-second interval movement.

<Time Setting Warning Function>



When the watch is again exposed to light after stopping, although the second hand begins to move, since the time is incorrect, the second hand moves irregularly at two-second intervals to indicate that the time is incorrect. Reset the time after the watch has been sufficiently charged. The second hand will continue to move irregularly at two-second intervals unless the time is reset.

<Overcharging Prevention Function>

The overcharging prevention function is activated when the secondary battery is fully charged so that it is not charged further.

<Power Save 1>

When power is no longer generated as a result of light not shining on the solar cell, the second hand stops and the watch enters the Power Save 1 state to reduce power consumption of the secondary battery. The minute and hour hands continue to keep time even though the second hand is stopped. Furthermore, operation of the calendar is linked with the movement of the hour and minute hands.

<Power Save 2>

When the Power Save 1 state continues for about 3 days, the watch automatically switches to the Power Save 2 state and movement of the hour and minute hands as well as calendar operation stop to further reduce power consumption of the secondary battery more than Power Save 1.

Note:

The power save function is not activated even when power is not generated as a result of light not shining on the solar cell during the time the secondary battery is fully charged and the overcharging prevention function is activated.

<Canceling Power Save>

The power save function is canceled when the solar cell is exposed to light and power generation is resumed. Each of the hands advance rapidly to the current time and begin moving. The date is also advanced continuously to the current date.

§6. GENERAL REFERENCE FOR CHARGING TIMES

The time required for recharging varies according to the model of the watch (color of the dial, etc.). The following times are shown below to serve only as a reference.

* Recharging time refers to the amount of time the watch is continuously exposed to light.

Illuminance (lux)	Environment	Charging Time		
		Charging time for 1 day of operation	Charging time from the stopped state to 1-second interval movement	Charging time from stopped state to fully charged
500	Inside an ordinary office	2 hours	27 hours	22 days
1,000	60–70cm (24-28 in.) under fluorescent light (30W)	1 hour	14 hours	11 days
3,000	20cm (8 in.) under fluorescent light (30W)	20 minutes	5 hours	82 hours
10,000	Outdoors, cloudy weather	6 minutes	2 hours	26 hours
100,000	Outdoors, summer under direct sunlight	1.5 minutes	45 minutes	7 hours

Full recharging time : Time required for recharging from the stopped state to fully charged.

Charging time for 1 day operation : Time required for recharging the watch to run for 1 day at 1-second interval movement.

§7. NOTES REGARDING HANDLING OF THIS WATCH

<Try to keep the watch charged at all times.>

Please note that if you wear long sleeves, the watch can easily become insufficiently charged as a result of it being concealed and unable to be exposed to light.

- When you take the watch off, try to place it in as bright a location as possible to ensure that it always keeps the correct time.

CAUTION – Charging Precautions –

- Avoid recharging at high temperatures (over about 60°C/140°F) since this may result in damage to the watch during recharging.

Examples:

- * Charging the watch in close proximity to an incandescent lamp, halogen lamp or other light source that can easily reach high temperatures.
- * Charging the watch in a location that reaches high temperatures such as on a car dashboard.
- * When charging the watch with an incandescent lamp, always make sure the watch is at least 50 cm(20 in.) away from the lamp so that it does not reach excessively high temperatures during charging.

§8. REPLACING THE SECONDARY BATTERY

The secondary battery used in this watch does not have to be periodically replaced in the manner of ordinary batteries since it is able to be charged and discharged repeatedly.

§9. ALL-RESET

The display of this watch may not read correctly as a result of being subjected to the effects of static electricity or strong impact and so forth. When this happens, perform the procedure described in "10. REFERENCE POSITION ALIGNMENT" after performing the all-reset procedure described below.

1. Pull out the crown to the second click (time setting position).
 - The second hand moves to the 0-position stored in memory and stops.
2. Continuously press button (A) for at least 2 seconds.
 - The hour and minute hands perform a demonstration movement consisting of moving forward then backward and then forward again.
 - The second hand makes one revolution in the forward direction.This completes the all-reset procedure. Always make sure to perform the reference position alignment procedure after performing all-reset.

Note 1: Demonstration movement is not performed when the watch is insufficiently charged. Perform the all-reset procedure only after charging the watch sufficiently.

Note 2: Do not perform the all-reset procedure while the date is changing. This can cause the date position to shift. If the date position should happen to become shifted out of position, pull out the crown to the first click after completing the all-reset procedure, and turn the crown to the left while pressing button (A) to set the date to the correct position.

§10. REFERENCE POSITION ALIGNMENT

After performing the all-reset procedure, align the hour and minute hands at their reference positions by pulling out the crown to the second click, and the second hand and date to their reference positions by pulling out the crown to the first click.

1. Align the hour and minute hands at the 12:00 position with the crown pulled out to the second click.
 - ① Turning the crown to the right moves the hour and minute hands forward.
 - ② Turning the crown to the left moves the hour and minute hands backward.
 - Turning the crown to the right continuously causes the hour and minute hands to advance rapidly to the right, while turning the crown continuously to the left causes the hour and minute hands to advance rapidly to the left. Turn the crown to the left or right to stop the hands from advancing rapidly.
2. Align the second hand at the 12:00 position with the crown pulled out to the first click. In addition, align the date at "1".
 - ① Turning the crown to the right causes the second hand to move one second forward.
 - ② Turning the crown to the left causes the date to move one day forward.
 - Turning the crown continuously to the left causes the date to advance continuously. Turn the crown to the left or right to stop the date from advancing continuously.
3. Once each hand has been aligned at the 12:00 position and the date has been aligned at "1", return the crown to the 0 position (normal position).

Note 1: It takes about 1 second for the watch to store the reference position in memory. Once the reference position has been stored in memory, the second hand will begin irregular two-second interval movement. The reference position may not be stored in memory if the crown is operated before the start of irregular two-second interval movement after returning the crown to the normal position.

Note 2: The second hand will continue to remain stopped even if the crown is returned to the normal position unless the reference position alignment procedure is performed.

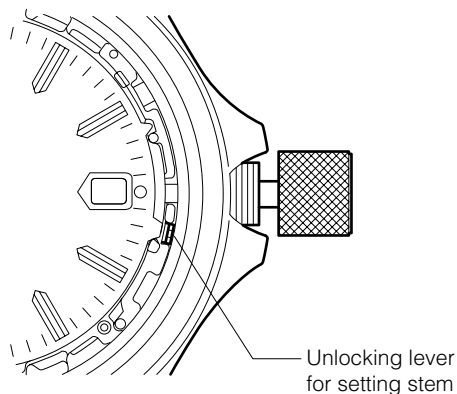
4. After performing the reference position alignment procedure, properly reset the time and date.
 - The watch shows 12:00 AM after reference position alignment has been performed. Set the time and date by referring to "4. SETTING THE TIME AND DATE" while paying attention to AM and PM.

§11. PRECAUTIONS FOR DISASSEMBLY AND ASSEMBLY

A. How to Pull Out Setting Stem from One-piece Case

1. When removing the setting stem from the case

- Pressing down the end of the unlocking lever for setting stem from above, pull out the setting stem.



<Procedure>

- (1) Set the crown at the normal position (Push it in).
- (2) Lightly press the end of the unlocking lever for setting stem with a screwdriver, etc. from above.
- (3) With the lever pressed, pull out the setting stem.

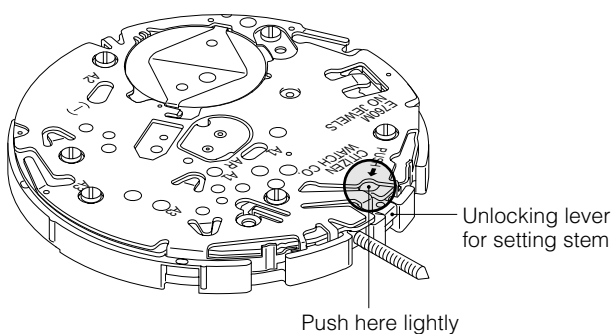
2. When removing the setting stem from the movement

- Pressing the base of the unlocking lever for setting stem ("PUSH →" position), pull out the setting stem.

<Note>

When the movement has been removed from the case, do not press the end of the unlocking lever for setting stem. If it is pressed in this case, it may be pressed too much to deform itself, circuit unit supporter, etc. since there is not a stopper.

If the movement is installed to the case with any part deformed, the setting stem may not be pulled out even if the unlocking lever for setting stem is pressed.



<Procedure>

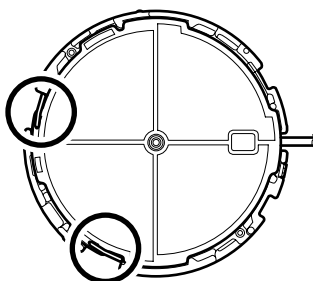
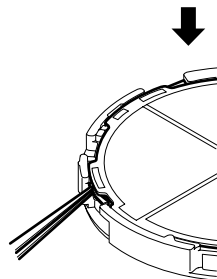
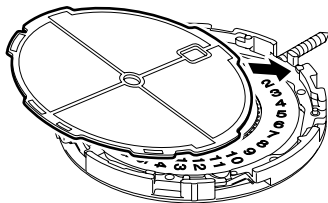
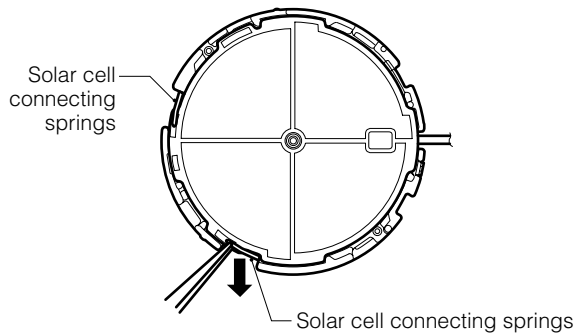
- (1) Set the crown at the normal position (Push it in).
- (2) Lightly press the base of the unlocking lever for setting stem ("PUSH →" position) with a screwdriver, etc. from above.
- (3) With the lever pressed, pull out the setting stem.

<Precautions for Removal and Setting of Solar Cell>

1. Precautions for handling of solar cell

- If the top of the solar cell is damaged, its charging capacity and other functions are lowered. Accordingly, sufficiently take care not to damage the top of the solar cell when removing and setting it.
- If the electrodes are stained or flaked off, a continuity trouble occurs. Since it is difficult to clean the top of solar cell, do not touch them with a finger, etc.

2. Removing and setting methods of solar cell



<Removing method of solar cell>

- (1) Slide off the contact of each of the two solar cell connecting springs on the top of the solar cell outward.
- (2) Pull and lift up the solar cell in the 9-o'clock direction to remove it.

<Setting method of solar cell>

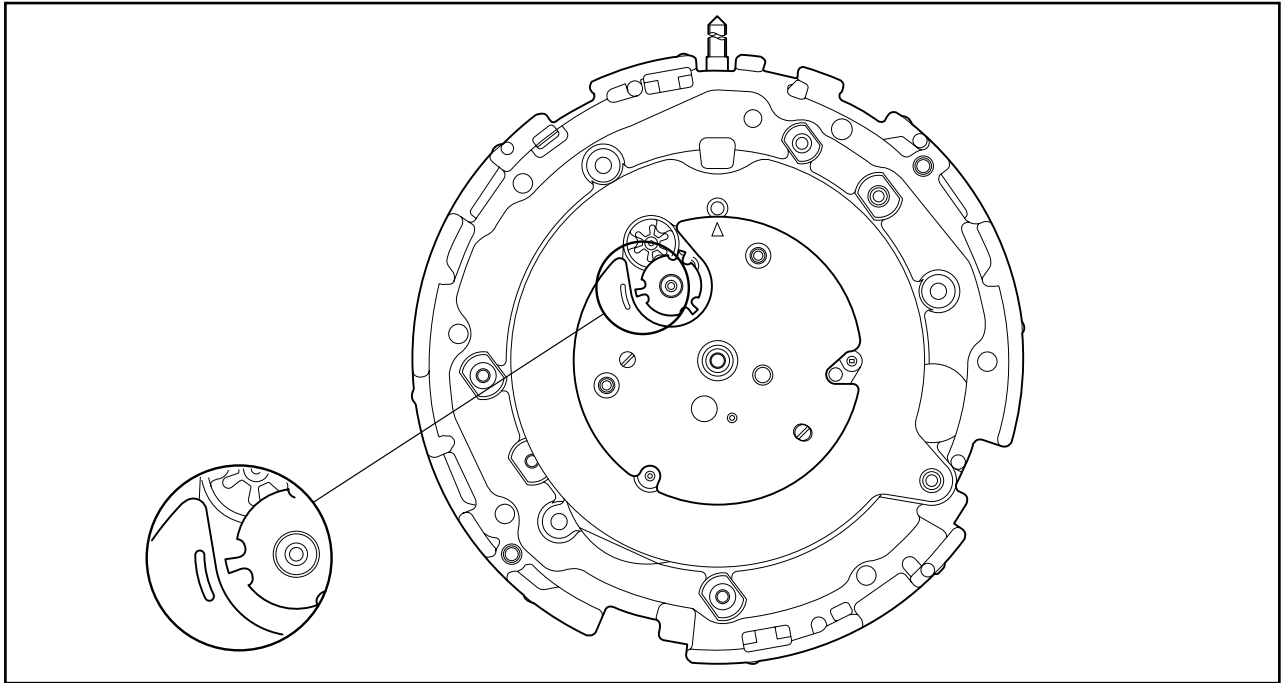
- (1) Slide the solar cell into under the overhanging sheet at the 4-o'clock position of the plate complete.
 - (2) Press down the solar cell lightly.
 - (3) Holding, opening, and lifting up each solar cell connecting spring with tweezers, move its contact onto the solar cell.
- Take care not to deform the spring with a too large force. Deformation of the spring can cause a bad contact, etc.
 - Check that the solar cell connecting spring is securely in contact with the conductor of the solar cell.

[Assembly of Parts Around Calendar]

1. Installing position of intermediate date wheel (4)

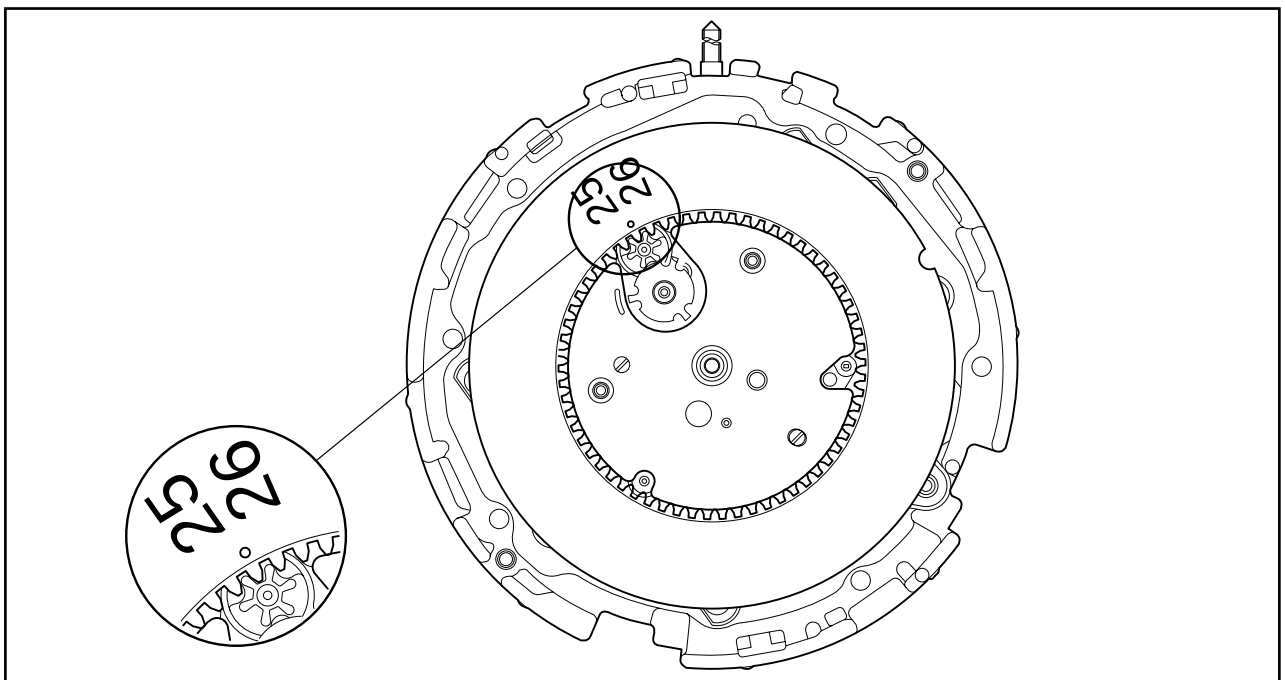
Position and install intermediate date wheel (4) through the oval zone of the date dial guard, taking care that its finger tip will not be removed.

If this wheel is deviated from the correct position, the changing timing of the date dial changes.



2. Installing position of date dial

Position and install the date dial so that the dot “•” between 25 and 26 on itself will be between the teeth of the date dial driving wheel. If it is installed correctly, 28 will be positioned at the setting stem.



[How to fit hands]

Before fitting the hands, perform the all-reset operation and then start the 1-second interval movement.

1. Perform the "all-reset" operation.
 - ① Pull the crown to the second click and press and hold the (A) button (the switch spring in the 2-o'clock division) for 2 seconds or longer.
2. Perform the "standard position setting".
 - ① Pull the crown to the second click and turn it to the right or left.
 - ② Pull the crown to the first click and turn it to the right or left.
 - ③ Return the crown to the normal position.
 - ④ Pull the crown to the second click and return it to the normal position again, and the watch starts the 1-second interval movement.
3. Fit each hand.
 - Fit the "hour hand" before the 12-o'clock division and pull the crown to the second click and turn it to the right to set the hour hand to the 12-o'clock division.
 - Fit the "minute hand" to the 12-o'clock division.
 - Fit the "second hand" to the 12-o'clock division.
4. Set the movement in the case and perform the "all-reset" operation and "standard position setting" again, then set the time and calendar correctly.

§12. DISASSEMBLY AND ASSEMBLY OF MOVEMENT

Disassembly procedure: ① → ⑤③

Assembly procedure: ⑤③ → ①

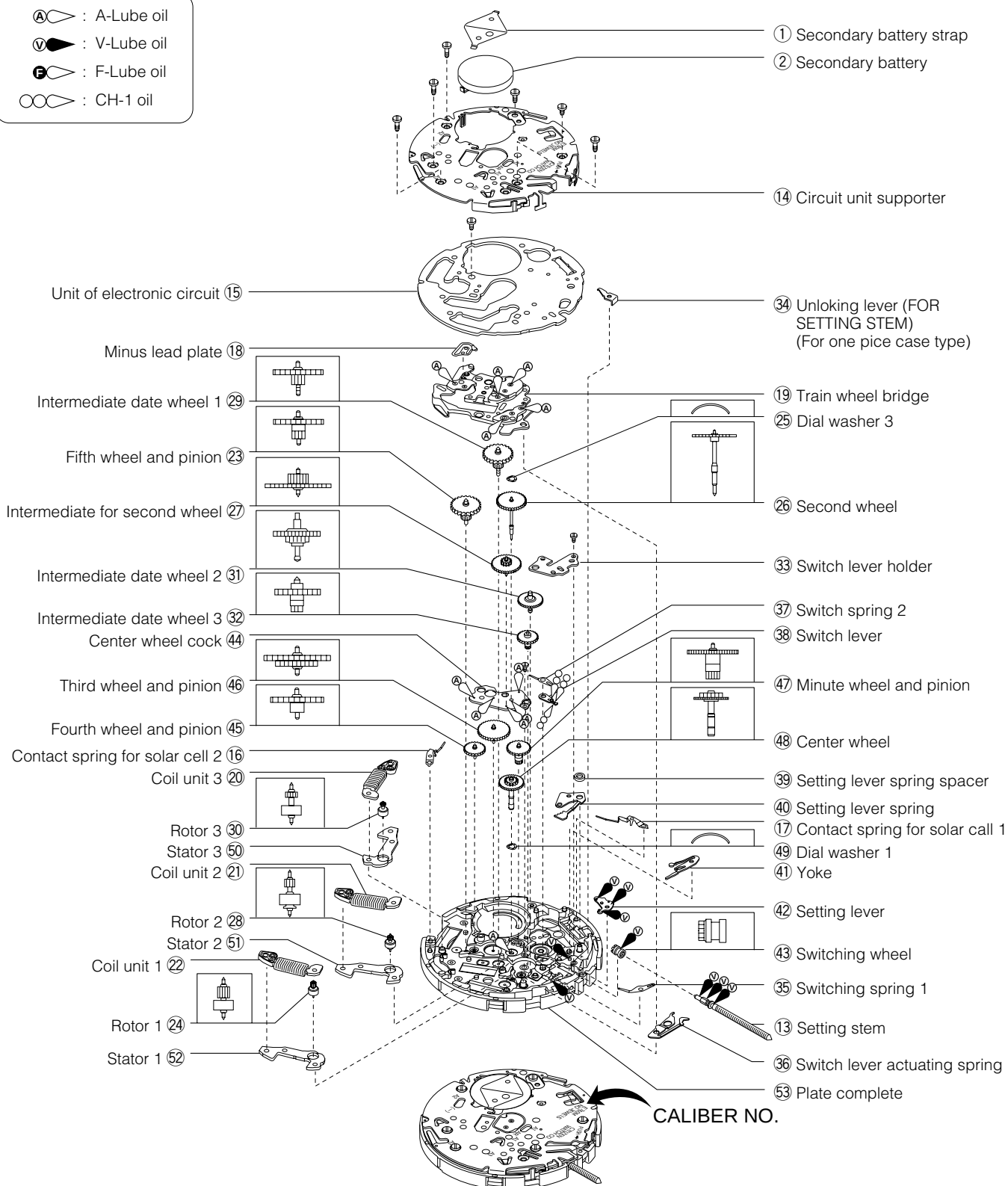
● Lubrication mark

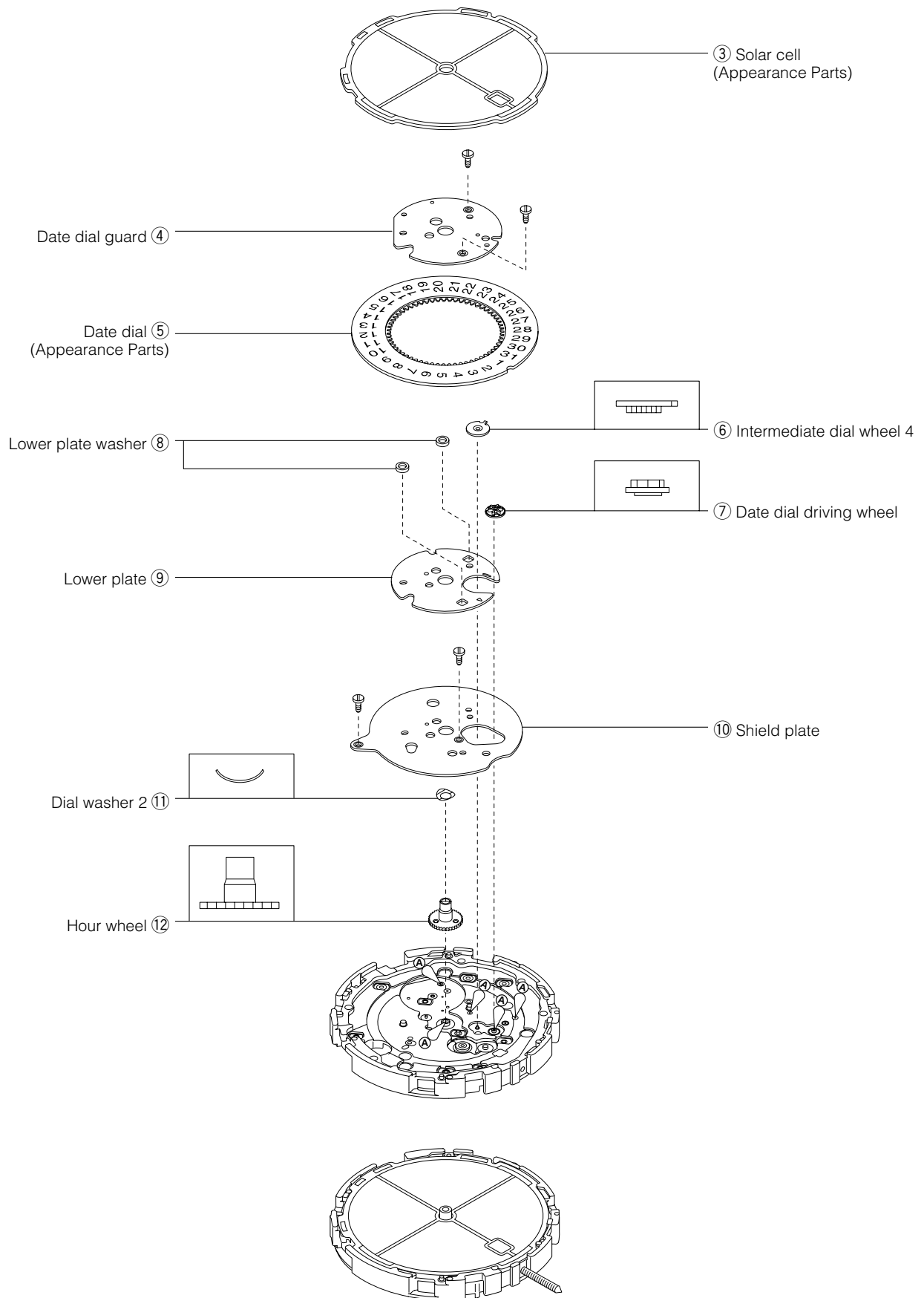
Ⓐ : A-Lube oil

Ⓥ : V-Lube oil

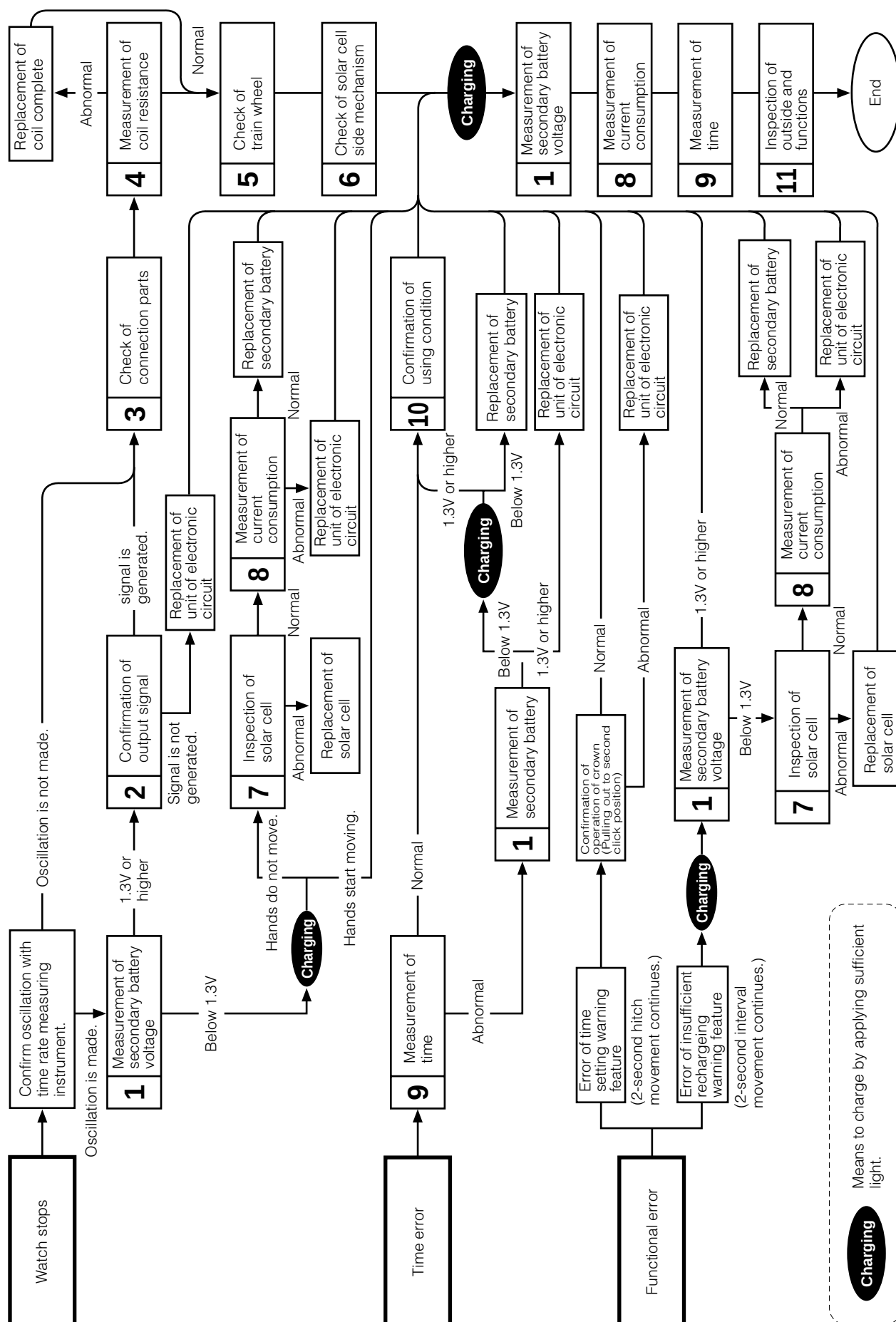
Ⓕ : F-Lube oil

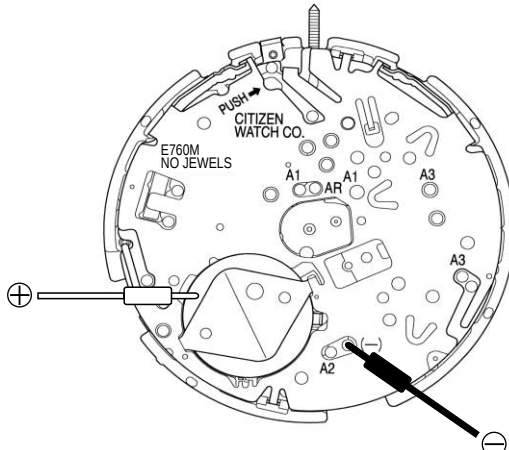
○ ○ : CH-1 oil

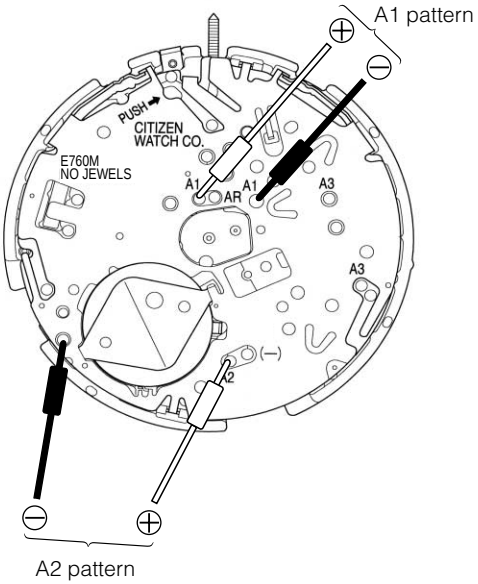


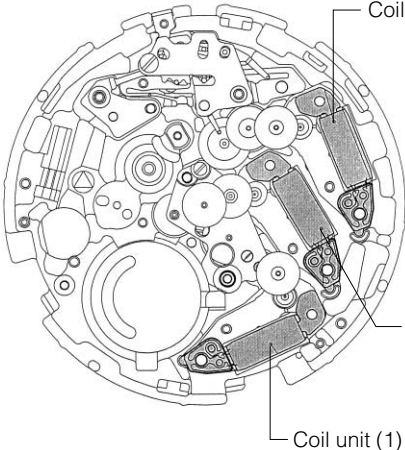


§13. TROUBLESHOOTING AND ADJUSTMENT METHOD



Check Items	How to Check	Result and Treatment
① Measurement of secondary battery voltage	<Tester range: DC. 3V>  Reference: ● 1.1V~1.3V: 2-second interval movement 1.3V~2.6V: Normal 1-second interval movement ● 2-second hitch movement is a function that signals that the watch has stopped and restarted. This mode will continue until the watch is set to the correct time, irrespective of the voltage. ● In the case the watch has stopped due to insufficient charging, a minimum of 30 minutes are required until the watch changes to the time setting warning display even if sufficiently exposed to light. Caution: When measuring the voltage, be careful not to place the ⊖ tester pin on the supporter for electronic circuit (a short circuit will occur).	1.3V or higher → Good Below 1.3V → Charge. ↓ Measure again after charging. 1.3V or higher → Check connecting parts. Below 1.3V → Check solar cell. ↓ Good ↓ Replace secondary battery.

Check Items	How to Check	Result and Treatment
② Confirmation of output signal	* Refer to Technical Manual, Basic Course: II-1-b. <Tester range: DCV. 0.3V>  <Pattern A1> ● In the 1-second interval movement, the tester pointer should moves to the right left every 1 second. ● In the 2-second interval movement or 2-second hitch movement, the test pointer moves in only one direction every 2 seconds. <Pattern A2> ● The tester pointer should move to right and left every 15 seconds.	Tester pointer does not move → Check connection parts. ↓ Connection parts are normal → Replace of electronic circuit unit.
③ Check of connection parts	* Refer to Technical Manual, Basic Course: II-2-a. ● Check for looseness of screws, dust, stain, etc. ● Check for stain and removal of the solar cell pattern (two places), deformation of connection spring, removal of welded lead plate of the secondary battery, stain of the circuit pattern, bad contact of each part.	Stain of solar cell pattern and circuit pattern → Remove stain. Removal of solar cell pattern, removal of circuit pattern, removal of welded lead plate of secondary battery → Replace parts.

Check Items	How to Check	Result and Treatment
④ Measurement of coil resistance	* For the setting method of the tester, see Basic Course: II-1-c. Remove the unit of electronic circuit and measure the coil resistance. <Tester range: R x 10Ω>  <The tester lead pins have no polarity>	Coil units (1), (3) 1.0 ~ 1.5kΩ → Good - Out of range of 1.0 ~ 1.5kΩ → Replace coil unit. Coil units (2) 1.9 ~ 2.3kΩ → Good - Out of range of 1.9 ~ 2.3kΩ → Replace coil unit.
⑤ Check of train wheel	* Refer to Basic Course: II-2-b.	
⑥ Check of solar cell side mechanism	* Refer to Basic Course: II-2-c.	
⑦ Check of solar cell	Check the solar cell for breakage and stain, and check its electrode for stain and flaking.	Breakage of solar cell → Replace solar cell. Stain → Remove stain. Flaking of electrode → Replace solar cell.

Check Items	How to Check	Result and Treatment
⑧ Measurement of current consumption	* Refer to Basic Course: II-1-f. This watch uses a secondary battery instead of a battery. Accordingly, prepare a silver battery (1.50V or higher), then measure the current consumption according to the following procedure. (1) Remove the secondary battery strap, then remove the secondary battery. (2) Referring to Technical Manual, Basic Course, set the silver battery (1.55V) to the adapter of the tester correctly. (3) Set the crown to the normal position. (4) Set the tester. Replace the positive ⊕ tester pin with a clip, then hitch it on the ground spring of the circuit unit supporter. Apply the negative ⊖ tester pin to the negative ⊖ pattern of the unit of electronic circuit. (5) Short the AR pattern and INT pattern simultaneously for about 2 seconds with tweezers, etc. • Apply one leg of the tweezers to the INT terminal and circuit unit supporter simultaneously. (6) Release the AR pattern first, and intermediate date wheel (1) rotates quickly. (7) After confirming that intermediate date wheel (1) rotates quickly, release the INT pattern. Note: The tester indicates a high value at first. Wait until the tester pointer is stabilized, then measure the current consumption of the movement. Note: When measuring the current consumption, do not apply any light to the solar cell. If any light is applied, the voltage changes and correct current consumption cannot be measured. <Tester range: DC 10μA> The diagram shows the internal components of a watch movement. Key parts labeled include the [AR] pattern, [INT] pattern, intermediate date wheel (1), peephole for intermediate date wheel, ground spring, and various terminals (A1, A2, A3). A note indicates to apply one leg of the tweezers to the INT terminal and circuit unit supporter simultaneously.	Current consumption by module Below 1.2μA → Good 1.2μA or higher → Measure unit of electronic circuit. Measurement of unit of electronic circuit. Below 0.4μA → Good 0.4μA or higher → Replace unit of electronic circuit. Current consumption by module is high but that by electronic circuit unit is low → A part other than circuit seems to have a trouble. Check for stain, bad lubrication, deformation of parts, and remove causes of load.

Check Items	How to Check	Result and Treatment
⑨ Measurement of time	* Refer to Basic Course: II-2-d. ● Since DF measurement is applied, measure in the 10-second range. The time rate cannot be adjusted, however. The time rate may not be measured accurately in the 2-second interval movement or 2-second hitch movement. In this case, apply light to the watch until the second hand moves in the 1-second interval movement, then measure the time rate.	● Time rate is very different from specification → Replace unit of electronic circuit.
⑩ Confirmation of using condition	* Refer to Basic Course: II-2-e. ● Since this watch is energized by light, it should receive light as much as possible. If the watch is placed near a light source which generates heat (above 60°C) such as an incandescent lamp, a halogen lamp, etc., its functions and parts may be deteriorated or deformed by the heat. Accordingly, take care when applying light to it. Example: When the watch is hidden under a long sleeve or the customer works in a dark place, it needs to be exposed to light on purpose.	
⑪ Inspection of outside and functions	* Refer to Basic Course: II-2-f.	